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AUTHOR Saville-Troike, Muriel
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ABSTRACT

The role of language development is discussed and some basic questions are raised about the need for special assessment instruments for limited English proficient (LEP) students. The extent to which positive transfer takes place across languages is noted and related to successful functioning of LEP students and school settings. The concept of interactional competence is also examined. It is suggested that reading achievement in English as a Second Language is more dependent on reading achievement in the native language than it is on relative oral proficiency in English. Academic competence requires knowing how to use language as a tool in acquiring knowledge and performing analytic processes, but these skills relate more closely to language competence in general. Radical changes, it is argued, are needed in testing procedures and interpretation for LEP children. The model of special education may offer answers to appropriate assessment and placement procedures. Federal law requires that students from non-English backgrounds must be assessed in their primary language as well as in English. It is concluded that test of English language proficiency alone--tests that are not based on or related to standard curriculum content for native speakers--should not be allowed to be used as the basis for academic placement for LEP students. Contains 34 references. (LB)

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Teaching And Testing For Academic Achievement: The Role of Language Development

Muriel Saville-Troike

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Introduction

From Charles Fries' (1945) definition of mastery of a second language as control over the pronunciation and grammar within a limited vocabulary, to the recent development of content-based ESL (English as a Second Language) materials emphasizing the importance of vocabulary in relation to cognitive information, the field of teaching ESL has come a long way in the past forty years.

However, not all areas of ESL have changed at the same rate, and there has been a "cultural lag" in some areas, perhaps most notably in the area of assessment. Meanwhile, even as a new instructional paradigm is beginning to emerge in ESL, based in part on recent concepts in cognitive psychology such as schema theory, new developments are taking place and those concepts are already being called into question and replaced by others. The purpose of this discussion is to sound a warning about premature fossilization of theoretical frameworks and methods in ESL—even the latest and most promising ones—and to explore the implications for assessment of some of these new developments, as well as of what we already know about first and second language learning. Some basic questions are raised about the need for special assessment instruments for limited English proficient (LEP) students, while at the same time calling for fairly radical changes in assessment procedures and interpretation.

Focus on language

To understand how language relates to academic achievement, we need to consider that relationship in terms of language development as more comprehensive cognitive processes. Our efforts in ESL and bilingual education in the 1960s and the 1970s were founded largely on the premise that linguistic differences, and particularly a lack of proficiency in English, are a primary causative factor in the low academic achievement of students in American schools who are from minority language backgrounds. This certainly seemed a plausible argument at the time, and still does, especially in those cases where students with limited English-speaking ability are required to learn exclusively through the medium of English. Certainly these students are at a disadvantage trying to understand instruction and express themselves in a foreign language, especially when they must compete with other students who have already mastered English.

We have since learned, however, that such an explanation is overly simplistic, that students' competence in English at the time they come to school does not have as much impact on their ultimate academic success as do some other factors, and that a foreign language of instruction is only one of the potential barriers to learning for students from linguistically and culturally different backgrounds. Evidence for this comes not only from the negative educational experiences of many groups of students, but also from the positive educational experiences of others (see Hakuta, 1990).

Let us begin with one example of why our focus on language has generally been too narrow. A traditional concern in ESL has included contrasting students' native language with English as a basis for assessing "interference" or "negative transfer" so that appropriate remediation could be applied. While native language interference is still a viable issue in applied linguistics, there is little evidence that it has much effect on students' learning to read or on their academic development.

Positive transfer

One thing that has not been adequately recognized is the extent to which *positive* transfer takes place across languages, and across contexts of learning for limited English-speaking students. Most important is the extent to which that transfer is *social* and *cultural*, as well as *cognitive* in nature.

Let us first relate this concept to oral language development. In the earliest stages of a child's first language acquisition, meaning exists in the social and cultural context of interaction. Linguistic forms (such as words and sentences) are first ascribed meaning only because they are embedded in these contexts. With time, through further social interactional experience and cognitive development, "meaningful context" additionally comes to include the linguistic forms themselves (Nelson 1981).

The knowledge representations which develop and are brought to bear in the communicative process have been labeled "schemata" or "scripts" by cognitive psychologists (Bartlett, 1932; Minsky, 1975; Rumelhart and Ortony, 1977; Schank and Abelson, 1977). Scripts are typically organized around a recurrent situation or process such as "going to see Grandma," traveling by bus, or ordering food in a restaurant. They include such matters as knowledge of setting, the identity and function of props, participant roles and responsibilities, expected activity sequences, rules for interaction, and norms of interpretation.

Once they have been acquired, the schemata or scripts that are developed in this process are available for the interpretation of meaning in similar events even if the language that is being spoken by other participants cannot be completely understood. When students begin learning a second language, they do *not* start learning all over again, but interpret meaning in terms of what they already know—not just about language, but about the context in which it is being used, and about strategies for social interaction. This means that the process of second language learning is heavily dependent on prior experience and apparently also on the nature and level of first language development.

This transfer phenomenon is easiest to recognize in face-to-face interaction where extralinguistic contextual cues are abundant. For instance, in my own research I have documented numerous examples of children who do not share a common language successfully playing with one another, negotiating ownership of property, and settling disputes about rights and relationships (Saville-Troike, 1987; Saville-Troike, McClure and Fritz, 1984).

We can observe this type of transfer phenomenon in U.S. school settings where there are students who have just entered from schools in other countries. Even if the students do not understand the language of instruction, those who have had prior school experience enter English-medium classrooms already equipped with a knowledge base for making inferences and predictions about the meaning of events that will occur there. This preexisting "script for school" accounts in large part for most students' ability to behave appropriately even when they cannot understand the words others are using, and it provides a meaningful context for the interpretation of new language forms.

Because script knowledge is cultural knowledge, however, scripts can

be expected to differ according to social experience. Learning new scripts, or adapting preexisting ones, is thus part of acculturation or resocialization to a new group and its structure. Efforts to assess limited English-speaking students need to be sensitive to points where misunderstanding does occur and may interfere with academic performance.

In the school where we conducted research, Jo Anne Kleifgen and I (Kleifgen and Saville-Troike, in press) analyzed instances of successful communication between the very limited English-speaking students and their content-area teachers in regular English-medium classrooms to find out what *does* work in such situations. Based on an examination of videotapes, we found that both students and teachers employed a general "top down" cognitive processing strategy, using their understanding of the larger context for the interpretation of particular events and actions. Because of similarities in prior knowledge and experience on both sides, students often only needed to comprehend a single key word to interpret questions, complaints, and directives, and to make an appropriate response. From the standpoint of second language teaching, it is noteworthy that student errors in pronunciation and grammar had only a minimal effect, *if any*, on their negotiation of meaning with teachers and English-speaking students when other dimensions of the situation were understood. Vocabulary knowledge, not surprisingly, was more significant than grammar or pronunciation. Even so, students and teachers often bridged lexical gaps with nonverbal cues (pictures, gestures, and tone of voice), but interpretation again required embedding the interaction in known or apprehensible context.

The students studied were children of foreign graduate students or visiting faculty at the University of Illinois. Similar social class background, family educational level, and internationally shared conventions of formal schooling provide the basis for commonalities in scripts between teachers and students. Thus, a relatively high level of positive transfer enables students to function in a new school setting while having limited proficiency in the language of instruction—*often more successfully, in fact, than native English-speaking students in the same classrooms from a less affluent and less well educated social class.*

Interactional competence

One concept that should be questioned is the common working definition of "comprehensible input," which presumes that simplified sentence structure is a significant feature. Our analysis of classroom interaction demonstrates that background knowledge is crucial to interpretation of meaning when knowledge of language forms is limited, but sentence complexity does not seem to make much difference. Even in the context-reduced processing of written text, Floyd and Carrell (1987) have shown that providing ESL students with supplementary background information significantly improves reading comprehension, while simplifying the syntactic structure has no significant effect. First language readability studies yield similar conclusions: in fact, simplifying sentence structure often makes a text *more* difficult for native speakers to process since it reduces redundancy.

While students can often negotiate meaning in face-to-face interaction even with extremely limited linguistic skills, because of the familiarity or redundancy of the extralinguistic context in which it is situated, their attainment of a high level of academic competence requires the ability to decode and encode meaning in context-reduced tasks, such as reading and writing. (Cummins [1980, 1981, 1984] has written extensively on this point, particularly with respect to the different requirements placed on linguistic competence.)

While not disagreeing that interpretation of written text requires a higher level of language skills, what should be brought into question is the dichotomization of language competence into CALP (Cognitive Academic Language Proficiency) and BICS (Basic Interpersonal Communication Skills) which many have adopted, with common equation of CALP alone with academic achievement. (For a discussion of language competences, see Harley, Allen, Cummins and Swain, 1990.) This is, at least, partially due to the nature of most assessment instruments, which abstract tasks from contexts in which they are actually learned and used. Achievement in school is actually heavily dependent on interactional competence—including display functions which teachers use for continuing informal assessment and calibration of instruction (Mehan, 1979). Further, sociolinguistic competence is important in conveying the "good attitude" toward school which receives heavy weighting both in teachers' evaluation of "readiness" and "progress" and in determining students' opportunities to learn.

As Cummins (1980) points out, teachers may overestimate students' linguistic ability to handle context-reduced tasks if they appear linguistically competent in social interaction. On the other hand, however, many students who lack competence in interaction *can* handle more cognitively demanding and context-reduced tasks, but may not be offered the challenge or the opportunity to do so. We will return to this issue, which is essentially one of instructional bias, since it merits much more attention.

Development of strategies in the native language

In addition to the higher level of language skills required to interpret written text, it is also important to recognize that academic success requires such strategies as listening or reading for the main point, generalizing, making logical inferences from known information, and constructing more complex schemata—strategies which are not specific to a particular language. Again, once these strategies have been developed in the native language, they apparently transfer quite readily to academic tasks in a different language.

Among the students I have studied who began school in another country, I have found that reading achievement in English as a second language is more dependent on reading achievement in their native language than it is on relative oral proficiency in English. This is true even when the language the students first learned to read is written in symbols which are quite different from our Roman alphabet, such as Japanese, Korean, and Arabic (Saville-Troike, 1984).

Most second language teaching and research has

focused on the linguistic factors which make reading comprehension possible, and they are, of course, important. However, as I have indicated, research in both first and second language on the intersection of background knowledge and reading comprehension shows that prior experience and expectations have a significant effect on the process. Background knowledge has a direct impact on how readers interact with what they see on a page. It affects how their thinking is directed as they read along and what kind of sense they make of a given text. The expectations and interpretive processes readers bring to the material and the expectations and understandings which they develop on their way through the material are directly related to their experience of the world, and their cognitive schemata, attitudes, and values, as well as their previous experience with the printed page.

In addition, academic competence requires knowing how to *use* language *as a tool* in acquiring knowledge and in performing analytic processes, but these skills again appear to relate more closely to language competence in a general sense, rather than to any particular language. Programs often choose to separate languages of instruction, but students who are academically engaged probably cannot and should not separate them.

In my own research (Saville-Troike, 1984), I have found that most of the students who achieved best in content areas, as measured by tests in English, were those who had the most opportunity to discuss the concepts they were learning in their native language with peers or with adults, even when they were mainstreamed in English-medium classes. Further, our research on private speech (using wireless microphones attached to students; Chen, 1987; Saville-Troike, 1988) has shown that students practice to themselves in their native language what they have been learning in English, providing evidence that their understanding often exceeds their ability to display their knowledge in English, a point which has more than considerable significance for assessment.

First language development and academic achievement

Major support for the suggestions of Cummins (1980, 1981, 1984) and others concerning the importance of *prior* first language development for second language academic achievement comes from the study of immigrant families (for example, Collier, 1987). There is good indication that the longer that students are schooled in their native country before immigrating to the U.S., the higher their school achievement in the U.S. and their learning of English is likely to be. This finding is one of the most important to emerge in recent years.

The now classic study of this phenomenon was reported by Skutnabb-Kangas and Toukomaa (1976) on the basis of a study of Finnish immigrant children in Sweden. They revolutionized the prevailing thought that the younger that children begin school in the new country the better they would do academically and in learning the second language. Skutnabb-Kangas and Toukomaa found that the optimum time for immigration appeared to be about 10–12 years of age. Based on research conducted both in Illinois and California, González (1986) has found that sixth graders who had immigrated to the U.S. after two years of education in Mexico consistently did better as a group on the CTBS English reading comprehension test than students who had started school in this country.

It should be emphasized, however, that what is involved is more than language alone. Part

of the answer also clearly lies in the types of social experiences children have which contribute to their knowledge structures. Those which more nearly match the experiences and expectations of school are going to transfer more readily. Children like those I have studied in Illinois, from well-educated families with extensive literacy-related experiences, are very likely to succeed in our schools no matter what their entry-level competence in English. Less educationally advantaged children have also developed knowledge structures before they come to school, but the widely held "deficit" position considers *their* language and culture a barrier to learning—a source of negative interference—rather than a resource for potential positive transfer. An alternative which would make *their* success more likely is to adapt school experiences and allow continuity and transfer of what students already know, and of their interactional and learning styles. This has been done in a dramatic way in the Kamehameha program for Hawaiian children in Honolulu (Au and Jordan, 1981) but is not likely to be widely adopted, as institutions generally expect the individual to change to meet their demands, and not vice-versa.

Developing the second language

For limited English speakers who have not yet fully developed their native language skills, the context-reduced tasks of reading and writing, or literacy-related processes like inferencing and complex schema formation, are obviously more easily fostered in the language students are most fluent in. Those skills and processes will then transfer to English. Even when we are sure this is sound educational practice, however, we must recognize the powerful influences of culture and politics on our schools. There is a false but pervasive belief in our nation that children should "get into English" as soon as possible or they will be retarded in learning. Because this is a matter of faith, based on profound social attitudes and convictions, evidence to the contrary has had little impact on policy (for discussion, see Krashen, 1991).

Unfortunately, initial emphasis on developing English language skills often involves placement and instructional content which is based on students' supposed language proficiency level rather than what would be considered "normal" curriculum content in the larger educational setting, or their level of cognitive development and prior learning in their native language. This creates a separate (and unequal) curriculum track for LEP students which is often discriminatory in effect, if not in intent. As Moll (1986) has pointed out:

> The problem of instructional bias and of watering down the curriculum is, of course, not limited to non-native English-speaking students; it may occur in the education of speakers of non-standard English dialects or of students whose language or cultural behavior does not conform to that of the dominant society. In fact, as Anyon (1980), among others, has shown, watering down the curriculum may be viewed as part of a broader stratification of instruction across social class groups.

In the present move toward so-called "sheltered English" programs, well-intentioned as they may be, we are running a great risk that the isolation of LEP students from native speakers and regular classes may in fact serve to retard their linguistic and academic development. Research by Nagy and others (Nagy, Anderson and Herman, 1987; Nagy, Herman and Anderson, 1985) has shown that a high percentage of children's vocabulary growth during the elementary school years is not based on direct vocabulary instruction at all, yet successful reading and academic achievement in content areas depends heavily on the acquisition of just this other vocabulary.

This instructional bias—teaching to children's low level of English—

is found even in bilingual programs, regardless of the children's academic competence in their first language. Moll (1986) also cites evidence that this same phenomenon has more recently become evident in computer instruction:

> Poor and [limited English] students do drill and practice; affluent and English-fluent students do problem solving and programming. . . . Part of the problem is the overwhelming pressure to make [limited English] students fluent in English at all costs. Learning English, not learning, has become the controlling goal of instruction for these students, even if it places the children at risk academically.

And again, more than language is involved in this phenomenon. Much of the massive school failure among students from non-English backgrounds must be attributed to attitudes—both those educators hold toward minority students and students' perceptions of themselves and of the school. Teachers of the advantaged foreign children in Illinois described earlier *knew* they would be good students before they even met them. On the other hand, in one first grade classroom visited near the beginning of the school year, the teacher had already determined that a not-so-advantaged group of Spanish-speaking children in the class, to quote her, "would not be able to learn to read this year."

Academic achievement

Why do large numbers of our Spanish-speaking students not succeed in school? Again, I doubt that the Spanish accent or grammatical interference in their English has much to do with it, at least directly. As mentioned earlier, González (1986) has shown that immigrant students from Mexico who attended school for two years prior to coming here had higher reading scores *in English* by the sixth grade than did Spanish-speaking peers who began school here. In short, students with two years *less* instruction in English—and here we are not talking about advantaged middle class children—did better in English than those who had two years more instruction in the U.S. Why should this be, and why should it be that, nationally, blacks consistently average below Hispanics in achievement scores, even though blacks are almost all native speakers of English?

The answers are not simple to find, and we should beware of simplistic unidimensional responses. Educational programs for non-English-speaking students, whether bilingual or all-English, do not exist in isolation from the schools, school systems, and communities in which they are embedded, any of which may exert more effects on program outcomes—for good or ill—than many of the efforts that are expended in instruction, curriculum design, or materials development. Ogbu (1978) has argued that the long-term effects of social and economic discrimination may negatively affect the cultural attitudes and expectations of minority communities. At the same time, research on school "climate" and the effects of educational leadership at the school level show that these influences are not wholly deterministic, and that the attitudes and behaviors of principals can affect academic results for an entire school. The findings of recent "school effectiveness" research (Rutter, 1983) indicate that whole-school effects do exist and may be considerable.

It is easy to take refuge in the "home-school discontinuity hypothesis," or the "linguistic mismatch hypothesis," to explain the educa-

tional problems of many of the non-English speaking students in our schools. But these simplistic answers—though they are certainly relevant—do not account satisfactorily for the academic stratification of blacks and Hispanics in the U.S.—or Asians, for that matter. Here we are in a larger realm of the effect of attitudes on instruction, learning opportunities, motivation, and cognitive demands. Language does not exist in a vacuum, and how it is developed, and for what purposes, lies beyond but is inextricably intertwined with language form and use. The recognition of these issues helps frame the problem for any effort to relate language assessment to academic placement and achievement.

Recent developments in the field of cognitive psychology have also begun to emphasize recognition of the complexities of human knowledge and behavior. One of those working on the cutting edge of this field nationally is Rand Spiro (Spiro, Coulson, Feltovich and Anderson, 1988; Spiro, Vispoel, Schmitz, Samarapungavan and Boerger, 1987), who is challenging the oversimplification and limited scope of previous work in schema theory and arguing that there are many areas of knowledge which are best characterized as "ill-structured domains," and require a more complex approach to understand. He is proposing that we adopt Wittgenstein's metaphor of *landscapes* in examining these areas, since they can be looked at from different perspectives, and may look different depending on the perspective from which they are observed.

This view is consonant with other recent developments in science generally, which move away from the older notion that the way to study a phenomenon is to artificially simplify it as much as possible, and to abstract away from the complexities of natural contexts. While at an early stage in the development of a science this approach may have some heuristic value, there is a serious danger that the understandings which result may in fact be an artifact of the simplification, and may have to be rejected when an analysis is undertaken which more fully acknowledges the complexities. The danger is greater in that the illusion that we are dealing with a "well-structured domain" contributes to development of overly rigid schemata, which have been shown to inhibit transfer and application of knowledge in an "ill-structured domain," such as education. Cziko (1989) has recently come to a similar conclusion, namely, that much of the failure of educational research in particular, and the social sciences more generally, to arrive at valid generalizations arises from the efforts to abstract, simplify, and analyze data indexically rather than in the fullness of their ecological context.

Language assessment

What then of testing and assessment of LEP students for academic purposes? Language assessment in the past, developed largely by linguists working with specialists in measurement, neither of whom have immediate experience in educational contexts, has generally followed positivistic models and has been focused on language rather than on language in relation to academic proficiency. If we ask, *what is really important to assess in regard to a LEP student's chances for succeeding in a regular English-medium classroom?*, we are posing a very different kind of question than has been asked in the past, and one which, considering the complexities I have discussed, requires a very different answer.

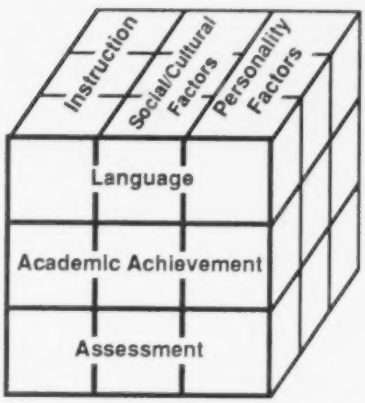
First of all, it is important to recognize that existing

language assessment measures show a very low predictivity with regard to academic achievement, suggesting that they measure the wrong things from an educationally-significant perspective, and are largely irrelevant for academic purposes. Such tests reflect the earlier simplistic view that language was the only, or principal, factor affecting academic achievement, so such results are not surprising, and indeed might have been expected. Given our present realization of the complexity of factors affecting achievement, what sort of assessment program might we need that would give due recognition to all of these factors?

Since it is evident that different factors and diverse configurations of factors affect achievement of LEP students differently in various contexts, one approach which might be proposed would be to measure as many of these factors as is feasible, and to examine their relation to academic achievement independently in each context. Before this can be done, it will be necessary to carefully map the areas which are to be assessed. We cannot measure knowledge or language proficiency directly, since we cannot simply insert electrodes into the brain to do so. Consequently we must construct maps representing the areas of the landscape to be assessed, and then develop instruments which validly sample the maps.

Assessment should be multidimensional. The multidimensionality of the aspects which need to be considered move us beyond two-dimensional cubes to three-dimensionally interconnected arrays of these cubes in a model resembling Rubik's famous six-sided cube.

A speculative proposal for such a model would assign various areas to different faces of the cube as follows:



Each of these faces would then be divided into sub-areas: *language*, for instance, would include subdivisions for different skills in both native and second languages, and *academic achievement* subdivisions for cognitive processing capacities, content knowledge, and performance skills. The main point of such a model is to recognize not only the complexity of the facets involved, but their interconnection as well. This obviously goes beyond what can be portrayed on a two-dimensional page, but is quite feasible with computer-modeling capabilities.

Another approach is to consider what constitutes the ingredients of successful academic achievement among native English-speaking children, and how the schools at present routinely measure student progress and use such information in their ongoing operations. Since reading ability in English is the single most important skill determining school achievement beyond the third grade, this is a major criterion in measuring student progress, either in the form of formal tests, or in informal teacher assessment. As has been well-known for a number of years, the most highly correlated subscore within a reading test with the overall score is that for vocabulary knowledge, so much so that the vocabulary subtest

is often administered as a proxy for the full test. Thus we in ESL are rediscovering what educators have known for some time—*that vocabulary knowledge is one of the most important determinants of academic achievement, and vocabulary tests provide one of the most reliable measures of academic progress.* While such tests, either standardized or teacher-made, are clearly a type of language test, note that they are related to normative expectations of the types of abilities, skills, and knowledge associated with placement on the academic scale from success to failure. As such, they do not simply test knowledge of isolated words, but rather they are indexical for a larger body of concepts, schemata, and cognitive skills considered central to achievement in the educational enterprise as it is presently defined.

Conclusion

Perhaps, then, an answer to our search for an adequate and appropriate measure of academic language proficiency has already been found, and all we need to do is adopt some currently used standardized reading tests for use with LEP students. Such tests are highly integrative in nature and tap a large proportion of the skills which determine school achievement. While some such solution may, in fact, prove to be reasonable, it is not without some caveats and suggestions for necessary supplementation. As I indicated at the beginning of this discussion, radical changes are needed in testing *procedures* and *interpretation*. For example, García (1987) has shown that LEP children may misinterpret English words or reading passages based on erroneous lexical or semantic associations with their own language, or on different cultural schemata or personal experiences. This research emphatically showed that scores by LEP students on such tests should not be taken uncritically at face value, but that debriefing interviews afterward are essential to check on comprehension and reasons for responses. (This may be an equally valid point for native English speakers.) Secondly, we may look to the model of Special Education for assessment and placement procedures, since Federal law and many state plans require that students from non-English language backgrounds must be assessed in their primary language as well as in English before they are placed into a special program. Despite all of the research pointing to the importance of the native language in cognitive development, we have failed to insist that where appropriate (e.g., not where native language loss has occurred or skills are marginal) all LEP students should have a right to assessment in their native language as well as in English, and that placement judgments should not be based on English performance alone. Further, tests of English language proficiency alone which are not based on or related to standard curriculum content for native speakers should not be allowed to be used as the basis for academic placement.

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About the author

Muriel Saville-Troike is Professor of English and Director of the Ph.D. Program in Second Language Acquisition and Teaching at the University of Arizona. She is past president of Teachers of English to Speakers of Other Languages (TESOL) and the American Association for Applied Linguistics (AAAL). Her publications include *The Ethnography of Communication, Foundations for Teaching English as a Second Language, A Guide to Culture in the Classroom,* and (with Rudolph C. Troike) *A Handbook of Bilingual Education.*

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